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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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EXAMINER

BERMAN, JASON

ART UNIT

PAPER NUMBER

1795

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DELIVERY MODE

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PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/520,755	<b>Applicant(s)</b> LANDGRAF ET AL.	
	<b>Examiner</b> Jason M. Berman	<b>Art Unit</b> 1795	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 30 January 2009.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 17-28 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 17-28 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)                     | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## **DETAILED ACTION**

### ***Status of the Claims***

Claims 17-28 are pending in the current application.

### ***Continued Examination Under 37 CFR 1.114***

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 1/30/2009 has been entered.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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4. Claims 17-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saunders (US 5,531,876) in view of Ueda (JP 2002155356, cited in IDS as WO 02/20866).

As to claim 17, Saunders discloses a target support assembly comprising:

- A support sleeve on which is arranged a target sleeve (Figure 2: support 15 for target 12);
- A plurality of elastically-active clamping elements being distributed between the sleeves arranged in a respective external recess in the support sleeve (figure 2: showing clamp 16 in recess);
- Each clamping element having a portion press-fitted in the associated recess and possessing a radially extending portion in clamping contact with the internal surface of the target sleeve (figure 2: showing shape of clamps 16 and 17);
- The clamping elements each comprising an elastically deformable, electrically and thermally conductive material (col 3 lines 16-19: clips are BeCu alloy; both beryllium and copper are inherently good thermal and electrical conductors);
- Each clamping element being an angled leaf spring having the portion forming a base arm extending along the bottom of the recess with the base arm having opposite ends wedged between the sidewalls of the recess (figure 2: showing spring clips deforming to clamp target to backing plate); and

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- A clamping arm of the clamping element extending radially angled outwardly from the recess and the arm having a free end forming an outwardly curvilinear portion for clampingly contacting the oppositely located surface of the target sleeve (figure 2: showing spring clips deforming to clamp target to backing plate).

Saunders, while disclosing a clamping element for a support sleeve and target, is silent as to the structure being cylindrical in nature.

Ueda discloses a sleeve and cylindrical support sleeve with a target lining (figure 4: target 20 with lining 52 and support sleeve 16). Elastic clamping and sealing elements are also present in the apparatus of Ueda in a recess between the support and target and the arrangement is designed to allow easy replacement of the target (figure 7: elastic rings 53; English translation abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the clamping elements of Saunders in a cylindrical target and support sleeve arrangement of Ueda, because the clamps of Saunders effectively allow the target to be held removable in place (Saunders at abstract).

As to claim 18, Saunders discloses a target support assembly comprising:

- A support sleeve on which is arranged a target sleeve (Figure 2: support 15 for target 12 on electrode 4);
- A plurality of elastically-active clamping elements being distributed between the sleeves arranged in a recess (figure 2: showing clamp 16 in recess);

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- Each clamping element having a portion press-fitted in the associated recess and possessing a radially extending portion in clamping contact with the internal surface of the target sleeve (figure 2: showing shape of clamps 16 and 17);
- The clamping elements each comprising an elastically deformable, electrically and thermally conductive material (col 3 lines 16-19: clips are BeCu alloy; both beryllium and copper are inherently good thermal and electrical conductors);
- Each clamping element being an angled leaf spring having the portion forming a base arm extending along the bottom of the recess with the base arm having opposite ends wedged between the sidewalls of the recess (figure 2: showing spring clips deforming to clamp target to backing plate); and
- A clamping arm of the clamping element extending radially angled outwardly from the recess and the arm having a free end forming an outwardly curvilinear portion for clampingly contacting the oppositely located surface of the support sleeve (figure 2: showing spring clips deforming to clamp target to backing plate).

Saunders, while disclosing a clamping element for a support sleeve and target, is silent as to the structure being cylindrical in nature.

Ueda discloses a sleeve and cylindrical support sleeve with a target lining (figure 4: target 20 with lining 52 and support sleeve 16). Elastic clamping and sealing

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elements are also present in the apparatus of Ueda in a recess between the support and target and the arrangement is designed to allow easy replacement of the target (figure 7: elastic rings 53; English translation abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use the clamping elements of Saunders in a cylindrical target and support sleeve arrangement of Ueda, because the clamps of Saunders effectively allow the target to be held removable in place (Saunders at abstract). It is noted that Saunders discloses the recesses to be on the external recesses of the sleeves, rather than the internal surface. It would have been obvious to one of ordinary skill to use an internal surface of the target for the recess since such an arrangement would have the same ultimate clamping effect and would therefore only require routine skill in the art to rearrange the orientation of the clamps.

As to claim 19, Saunders discloses the clamping elements have rounded insertion edges on both sides in an axial direction (figure 2: clamping elements 16 and 17 having entirely rounded structure along clamping edges).

As to claim 20, Saunders discloses the clamping elements have a clamping arm that exerts clamping pressure with the free end of the arm (figure 2: showing clamping elements 16 and 17 with free end pressed between sidewall and targets 11 and 12).

As to claim 21, Saunders discloses an insertion segment is arranged at the free end of the clamping arm and forms a rounded shaped element with the clamping arm (figure 2: clamping elements 16 and 17 having entirely rounded structure along clamping edges).

As to claim 22, Saunders discloses the free end of the insertion segment is supported in opposition to the clamping pressure of the clamping position thereof (figure 2: showing rounded clamping end of clamping elements 16 and 17 supported against recess wall opposite target 11 and 12).

5. Claims 23-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Ueda in view of Ikeda (JP 01193463 A).

As to claim 23, Ueda discloses a target assembly comprising:

- A cylindrical support sleeve on which is arranged a target lining formed by a cylindrical target sleeve (figure 7: showing target 20 with lining 52 and support 16);
- Wherein a plurality of elastically active clamping elements distributed between the facing circumference of the sleeves are arranged in a respective recess of a plurality of recesses formed in the external surface of the support sleeve (figure 7: showing recesses in lining 52 for rings 53);
- Each clamping element having a portion located in the recess and a radially projecting portion in clamping contact with the internal cylindrical surface of the target-sleeve (figure 7: showing ring 53 compressed between target 20, lining 52 and backing plate 16);
- The clamping elements comprising an elastically compressible material in a ring-shaped tubular member of hollow cross-section (figure 7: ring shaped element 53);



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- The element extending along a curved bottom of the recess and between the sidewalls of the recess forming a clamping surface extending radially outwardly of the recess (figure 7); and
- The element having a curvilinear shape for clampingly contacting the oppositely located surface of the target sleeve (figure 7: showing o-ring elements 53).

Ueda is silent as to the clamping element being electrically and thermally conductive.

Ikeda discloses a sealing mechanism for a coating chamber in which multiple elastic o-ring are provided in a recess as a clamping means to vacuum seal the two components (English translation abstract; figures 1 and 2). Ikeda also discloses the o-ring is conductive to prevent leaking of the electric signals (English translation abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use a conductive o-ring clamping element, as disclosed by Ikeda, in the apparatus of Ueda, because a conductive O-ring will improve electrical and thermal contact between the target and backing plate.

As to claim 24,

- A cylindrical support sleeve on which is arranged a target lining formed by a cylindrical target sleeve (figure 7: showing target 20 with lining 52 and support 16);
- Wherein a plurality of elastically active clamping elements distributed between the facing circumference of the sleeves are arranged in a

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respective recess of a plurality if recessed formed in the internal surface of the target sleeve (figure 7: showing recesses in target 20 for rings 53);

- Each clamping element having a portion located in the recess and a radially projecting portion in clamping contact with the external cylindrical surface of the support-sleeve (figure 7: showing ring 53 compressed between target 20, lining 52 and backing plate 16);
- The clamping elements comprising an elastically compressible material in a ring-shaped tubular member of hollow cross-section (figure 7: ring shaped element 53);
- The element extending along a curved bottom of the recess and between the sidewalls of the recess forming a clamping surface extending radially outwardly of the recess (figure 7); and
- The element having a curvilinear shape for clampingly contacting the oppositely located surface of the target sleeve (figure 7: showing o-ring elements 53).

Ueda is silent as to the clamping element being electrically and thermally conductive.

Ikeda discloses a sealing mechanism for a coating chamber in which multiple elastic o-ring are provided in a recess as a clamping means to vacuum seal the two components (English translation abstract; figures 1 and 2). Ikeda also discloses the o-ring is conductive to prevent leaking of the electric signals (English translation abstract).

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use a conductive o-ring clamping element, as disclosed by Ikeda, in the apparatus of Ueda, because a conductive O-ring will improve electrical and thermal contact between the target and backing plate.

As to claim 25, Ueda discloses the clamping element has a rounded shape (figure 7: showing o-ring 53).

As to claim 26, Ueda discloses the clamping element and recess have an annular configuration (figure 7: showing recess and o-ring 53 as annular ring in target/backing plate structure).

As to claim 27, Ueda discloses the recess is a groove in the circumferential direction on the cylindrical sleeve (figure 7: showing o-rings 53 as circumferential ring in circumferential recess [cross section shown]).

As to claim 28, Ueda discloses the length of the support sleeve is greater than the target sleeve and at least one annular limiting part is fixed detachably on the support sleeve at both ends of the target sleeve (figure 7: showing backing plate 16 extending a greater distance than target 20 with removable o-rings 53 situated at each end of target 20).

#### ***Correspondence Information***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jason M. Berman whose telephone number is (571)270-5265. The examiner can normally be reached on M-R 8am-5pm EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam Nguyen can be reached on (571)272-1342. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Nam X Nguyen/  
Supervisory Patent Examiner, Art Unit 1753

/J. M. B./  
Examiner, Art Unit 1795